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## PRESSURE ULCER - ZERO TOLERANCE

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### ABSTRACT

Hospital-acquired pressure ulcers (HAPUs) are a national concern due to patient morbidity, treatment cost, and reimbursement issues. Indraprastha Apollo Hospital is a quaternary care hospital with a complex set up covering various super specialties. It includes legible number of (200) critical care beds. Our aim is to provide healthcare of international standards to the common people. One of our major challenges is dealing with bed bound patients who are prone to develop HAPU due to poor skin integrity. Patients are elderly, critically ill, unable to do activities of daily living [ADL] and have various co-morbid conditions or are hooked to life support systems, this make them vulnerable to skin injury secondary to limited movements. Project was aimed to reduce the cost of healthcare, planning in prevention of HAPU by monitoring vulnerable patients, for skin assessment at the time of admission with Braden scale, and use of light liquid paraffin, position clock [innovative idea] and deffereciate CAPU, DAPU, MARSI, and IAD and escalate manifold once HAPU develops. Apollo is committed to excellent care in all the health disciplinary including prevention of HAPU. This system has assisted in addressing HAPU tracing, prevention, compliance with regulatory mandates and achieved ZERO TOLERANCE TO HAPU.

**Key words:** HAPU [Hospital Acquired Pressure Ulcer], CAPU [Community Acquired Pressure Ulcer], Braden scale [Braden Pressure Ulcer Risk Assessment], (IAD).Incontinence-associated dermatitis, DAPU [Device associated Pressure Ulcer], MARSI [Medical adhesive related skin injury].

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### INTRODUCTION

Bed sores or pressure ulcers have a significant impact on the health status of patients and a country's healthcare costs, despite advances in medicine, surgery, nursing care and self-care education, bed sores remain a major cause of morbidity and mortality, particularly for patients with impaired sensation and prolonged immobility.

Indraprastha Apollo Hospital is a tertiary care hospital with a complex set up covering various super specialties and one of our major challenges is to deal with bed bound patients who are prone to develop bed sore due to loss of skin integrity. A large proportion of the hospitalized patients are elderly, unable to do activities of daily living and have various co-morbid conditions or are hooked to life support systems, this make them vulnerable to loss of skin integrity secondary to limited movements.

The achievements of an organization are the result of the combined effort of each individual. A clinical improvement project that was successfully completed in the specialized (technical) areas of hospital management, in Nursing. The project shows measurable results of having improved the service in such manner to reduced ALOS [AVERAGE LENGTH OF STAY IN HOSPITAL] prevention of service defects and faster results with little or no capital outlay. Winning two awards FICCI [Federation of Indian Chamber of Commerce & Industry] & HMA [Hospital Management Asia], 2013 with a leader who demonstrated what is possible.

### PRESSURE ULCER

The most recent definition from the National Pressure Ulcer Advisory Panel states that a pressure ulcer



is “a localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction” (EPUAP/NPUAP, 2009). [1 &2] Bed sores incidence has been used as an indicator of the quality of patient care. It is important that incidence and prevalence of bed sores be differentiated. Many clinicians believe that pressure ulcer development is not simply the fault of the nursing care, but rather a failure of the entire health care system. Hence, a breakdown in the co-operation and skill of the entire health care team such as nurses, physicians, physical therapists, dietitians, etc. Nurses are at the forefront of the mission to reduce suffering and deliver patient-centered care. By providing a national database and registered nurse surveys for examining relationships between nursing and patient outcomes, the National Database of Nursing Quality Indicators (NDNQI) delivers evidence to support the importance of investments in nursing strategy [3].

smaller amount of damage visible at the surface and a large amount of damage below the surface.

Bedsore are caused by pressure against the skin that limits blood flow to the skin and nearby tissues. Other factors related to limited mobility can make the skin vulnerable to damage and contribute to the development of pressure sores. Three primary contributing factors are] Sustained pressure. When your skin and the underlying tissues are trapped between bone and a surface such as a wheelchair or a bed, the pressure may be greater than the pressure of the blood flowing in the tiny vessels (capillaries) that deliver oxygen and other nutrients to tissues. Without these essential nutrients, skin cells and tissues are damaged and may eventually die. Friction. Friction is the resistance to motion. It may occur when the skin is dragged across a surface, such as when you change position. Shear. Shear occurs when two surfaces move in the opposite direction. This motion may injure tissue and blood vessels, making the site more vulnerable to damage from sustained pressure [4].

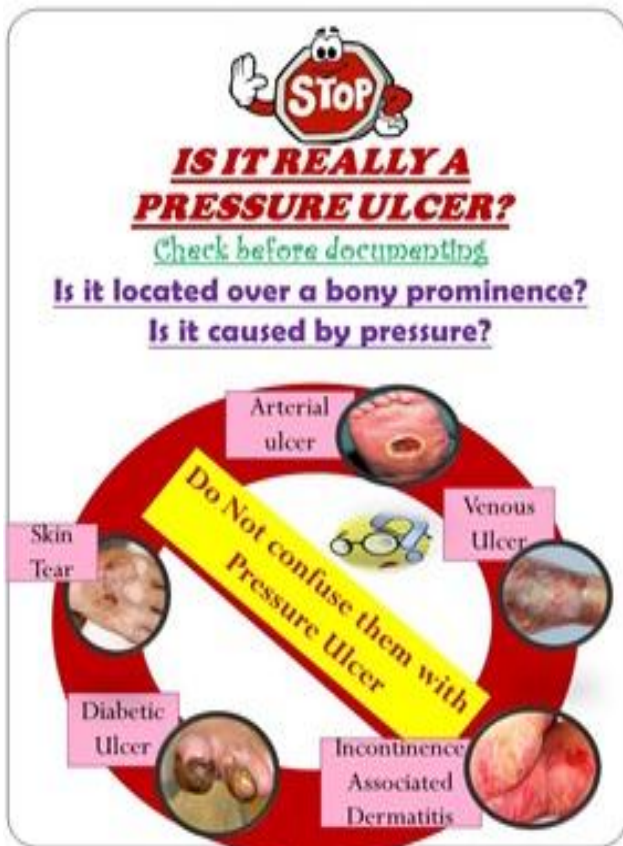


Figure 1.

### TRIGGERS FOR PRESSURE ULCER

The compression of soft tissue interferes with the tissue’s blood supply, leading to vascular insufficiency, tissue anoxia, and cell death. Pressure ulcers can develop within 24 hours of the initial pressure but take as long as a week to present themselves. The first tissues to die are nearest the bone, and as the pressure and anoxia continue, the remaining layers of tissue begin to die. The skin is the last to die. The damage resembles an iceberg, with a

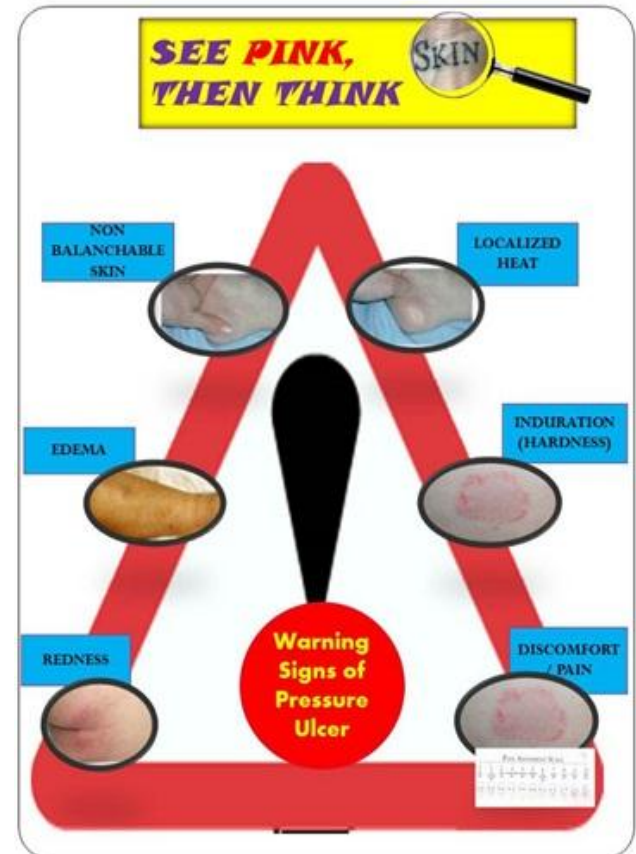


Figure 2.

### CATEGORIES OF PRESSURE ULCER

Patients come to hospital with a variety of illness but generally skin break down is termed as HAPU. Nurses who are the front line members of health care system must learn to deffereciate IAD [incontinence-associated



dermatitis]. Its part of a larger group of moisture-associated skin damage Moisture-related skin breakdown can be mistaken for a pressure ulcer. In 2005 consensus conference, attendees chose the term incontinence-associated dermatitis (IAD) [5].

Adhesive too cause bad skin injuries. Skin injury related to medical adhesive usage is prevalent but under recognized complication that occurs across all care settings and among all age groups. If proper technique for application and/or removal of adhesive products is not used, tissue trauma can occur, impacting patient safety and quality of life and increasing health care costs and may be confused with HAPU it is important to differentiate MARSII with pressure ulcers. In an effort to define best practices for prevention of such injury, a consensus panel of 23 recognized key opinion leaders convened to establish consensus statements on the assessment, prevention, and treatment of medical adhesive-related skin injury MARSII [6].

DAPU Pressure ulcers that result from the use of medical devices that are designed and applied for diagnostic or therapeutic purposes. The resultant pressure ulcer generally closely conforms to the pattern or shape of the device [7].

DAPU is preventable by Observation, knowing the risks of specific device and plan care as required. Education of family/staff by consistent reassessment/re-evaluation and communicating observation to work as a TEAM[ together each achieve more].



Figure 3.

**ZERO TOLERANCE FOR PRESSURE ULCER - EVIDENCE BASED PRACTICE**

In the long-term care setting, the Joint Commission has again made the prevention of healthcare-associated pressure ulcers as National Patient Safety Goal in 2014 [8]. Indraprastha Apollo Hospital, New Delhi is the first corporate hospital which has been aggregated by

JOINT COMMISSION INTERNATIONAL in 2005 and still caters for medical tourism.

**Actionable**

- Assess the bed bound patients skin integrity on daily basis
- Exclusive Training of staff nurses for 2 months, thrice a week on prevention of pressure ulcers
- Checking compliance on back care and position clock
- Providing pressure redistribution mattresses for all bed ridden patients
- Health education to bedridden patient and family to maintain compliance on prevention of pressure ulcer at the time of discharge
- Monthly report on HAPU (Hospital Associated Pressure Ulcer) and CAPU (Community Associated Pressure Ulcer)
- Braden scale assessment tool
- Use of emollient and skin protective barrier instead of old style powder
- Introduction of structured knowledge questionnaire to assess the knowledge of the staff nurses on bed sore prevention and care for critically ill patients.
- Introduction of structured observation checklist for back care.
- Introduction of structured Aftercare Patient Assessment Performa to assess development of bed sores.

**Braden scale**

Our hospital team worked to assess patients at risk for skin breakdown with an inter-professional approach to provide comprehensive, evidence-based assessment and treatment. With the tool of Braden scale [9]

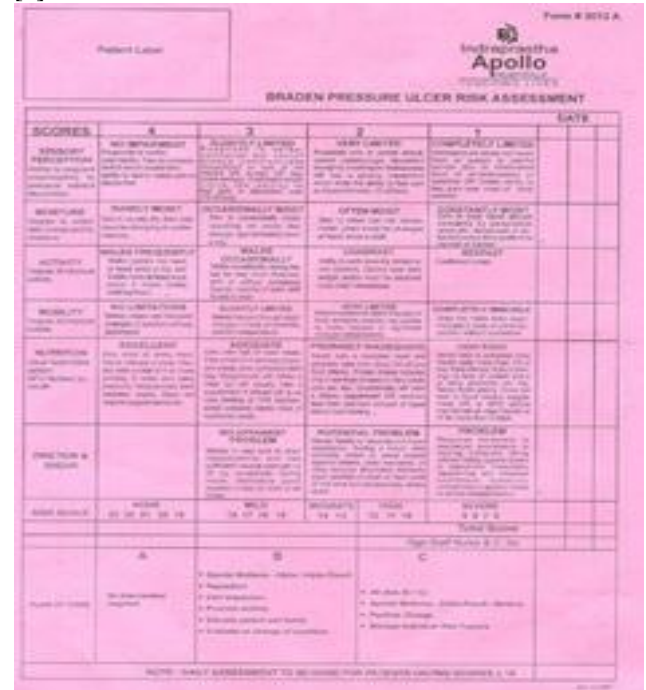


Figure 4.



Figure 5.

**Use of emollient**

With almost 200 bed ridden patients per day it has been a nursing challenge to achieve zero tolerance to HAPU. Use of light liquid paraffin for skin and back care, it works by providing a layer of oil on the surface of the skin to prevent water evaporating from the skin surface. Dry skin results from lack of water that becomes dehydrated cracked, scaly and sometimes itchy making it a potential and obvious reason for skin break down. Light liquid paraffin contains natural water-holding substances that retain water seeping up from the deeper layers of the skin, and water is also normally retained on the surface cells, which slow down evaporation of water from the skin surface.[10]

**Position clock**

Various nursing interventions are carried out to release pressure on bony prominences to reduce the incidence of HAPU however the innovative idea of our

leader Capt. Usha Banerjee, Group Director Apollo Group of hospitals is THE POSITION CLOCK which proves leadership in action, not position. This clock placed in the duty station of all nurses, ensures and reminds all patient, and a standard position to be maintained by all patient at a given time, it is scientifically planned keeping mind the anatomy and physiology of human body.



Figure 6.

**Impact**

The quantifiable outcome of the practices with respect to the reduction of bedsores, Average length of stay, improved score of voice of customer and knowledge of the staff nurses depicted in the form of graphical representations. [Fig 9-13]

**Table 1. Position with time**

Time	Position
8 A.M	Right lateral
10 A.M	Supine
12 Noon	Left lateral
2 P.M	Supine
4 P.M	Right lateral
6 P.M	Supine
8 P.M	Light lateral
10 P.M	Supine
12 mid-night	Right lateral
2 A.M	Supine
4 A.M	Left lateral
6 A.M	Supine





Figure 7.

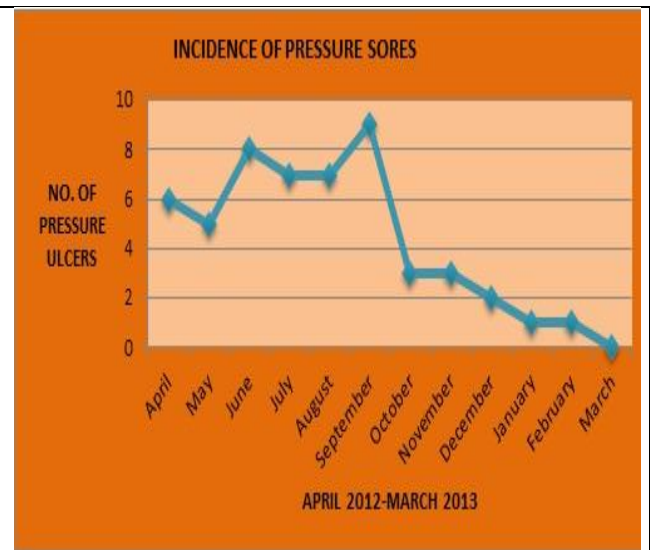


Figure 8.

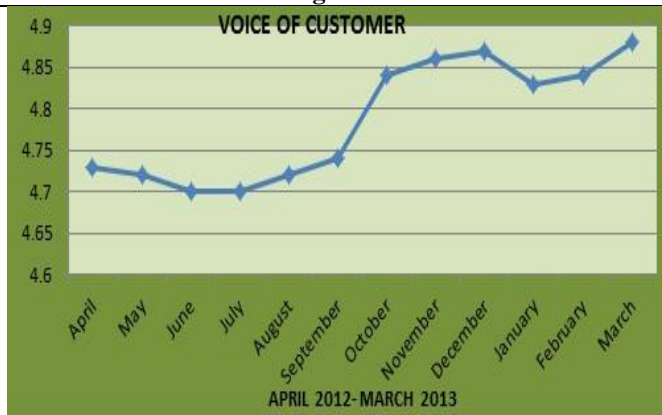


Figure 9.



Figure 10.

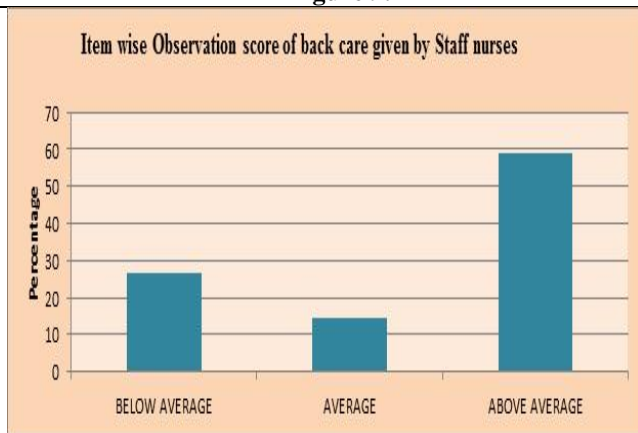


Figure 11.

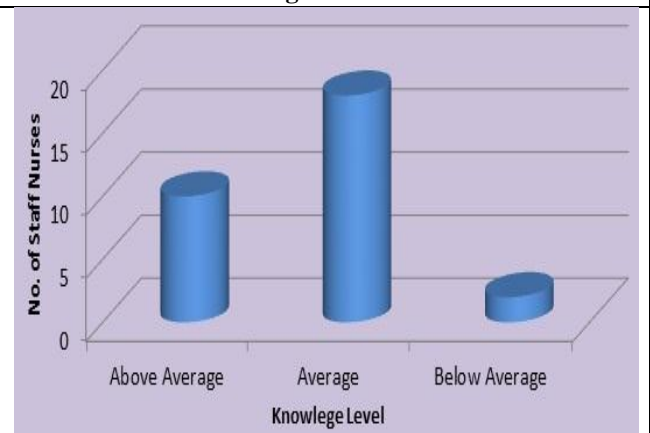


Figure 12.

**DISCUSSION AND CONCLUSION**

Pressure ulcers are a major nurse-sensitive outcome. Hence, nursing care has a major effect in preventing pressure ulcer. Reduction of pressure ulcer in hospital affects the patients in variety of ways. The

assessment, prevention, and treatment of pressure ulcers are of major importance to healthcare professionals and to the facilities at which they practice. Many facilities have developed pressure ulcer prevention programs to put these ideas into practice and prevent negative outcomes.



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